USSR

BELOV, B. I., SANDIMIROV, V. P., Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib. otd. AN SSSR, 1972, pp 108-132, 5285-72 Dep.

following properties: 1) a linear code is converted to a linear code; 2) with certain limitations on the parameters n, k and d, optimum codes are converted again into optimum codes. A rule is established whereby a modular representation of the transformed code is obtained if the modular representation of the initial code is known. By using the expansion operator, a class of optimum linear binary codes is constructed which coincides in power with the class of Venturini codes.

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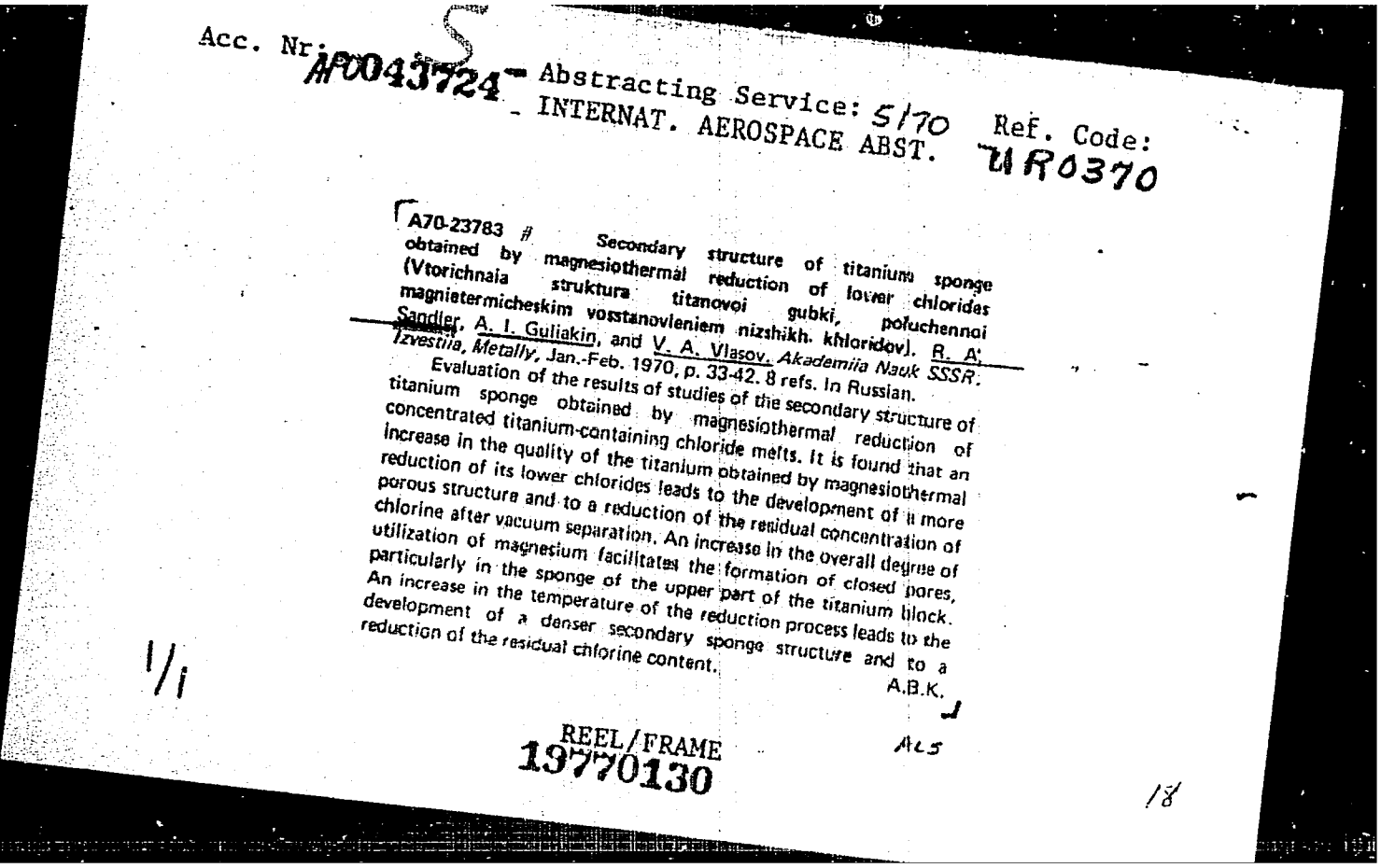

Acc. Nr. AP0043724 Abstracting Service: 5170 Ref. Code: UR0370
INTERNAT. AEROSPACE ABST.

A70-23783 # Secondary structure of titanium sponge obtained by magnesiothermal reduction of lower chlorides (Vtorichnaia struktura titanovoi gubki, poluchennoi magnietermicheskim vosstanovleniem nizshikh. khloridov). R. A. Sandler, A. I. Guliakin, and V. A. Vlasov. *Akademiia Nauk SSSR. Izvestiia, Metally*, Jan.-Feb. 1970, p. 33-42. 8 refs. In Russian.

Evaluation of the results of studies of the secondary structure of titanium sponge obtained by magnesiothermal reduction of concentrated titanium-containing chloride melts. It is found that an increase in the quality of the titanium obtained by magnesiothermal reduction of its lower chlorides leads to the development of a more porous structure and to a reduction of the residual concentration of chlorine after vacuum separation. An increase in the overall degree of utilization of magnesium facilitates the formation of closed pores, particularly in the sponge of the upper part of the titanium block. An increase in the temperature of the reduction process leads to the development of a denser secondary sponge structure and to a reduction of the residual chlorine content.

A.B.K.

REEL/FRAME 19770130

USSR

SANDLER E. I.

UDC: 621.3.049.67

"A Device for Checking Microcircuits"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 11, Apr 72, Author's Certificate No 333729, Division H, filed 18 May 70, published 21 Mar 72, p 232

Translation: This Author's Certificate introduces a device for checking microcircuits which contains a base for installation of the microcircuits, and feelers made of a magnetic material and located in guide holes in a dielectric plate. As a distinguishing feature of the patent, reliable contact between the feeler and the point of the microcircuit being checked is ensured by placing an electromagnet under the base.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INCREASE IN THE ADHESIVE PROPERTIES OF BRAND V BLACK POROUS SOLE RUBBERS -U-

AUTHOR-(05)-GUDIMENKO, V.I., PUSHKOVA, V.V., SANDLER, G.A., KUZNETSOVA, V.A., MARKICHEVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--KOZH.-OBUV. PROM. 1970, 12(5), 47-51

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MILITARY SCIENCES

TOPIC TAGS--RUBBER, VULCANIZATION, ADHESION, FOOTGEAR/(U)101K RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/D06 STEP NO--UR/0498/70/012/005/0047/0051

CIRC ACCESSION NO--AP0140292

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140292

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT CONST. RUBBER COMPN. THE ADHESION OF POROUS SOLE RUBBER TO CLOTH INCREASED WITH ITS D. THE D. WAS VARIED BY CHANGING THE RELATIVE VULCANIZATION TIMES AT LOW AND HIGH PRESSURES WHILE MAINTAINING THE TOTAL VULCANIZATION TIME CONST. ALTERNATIVELY, THE D. WAS VARIED BY CHANGING THE AMT. OF THE BLOWING AGENT (DINITROSOPENTAMETHYLENETETRAMINE). THE ADDNS. OF RESIN 101K, RESOTROPIN, OR RESORCINOL TO THE STD. RUBBER MIXES INCREASED THEIR ADHESION TO CLOTH 20-60PERCENT WITHOUT IMPAIRING OTHER PROPERTIES.

UNCLASSIFIED

USSR

UDC 539.216.2:539.1:539.4

LESNIK, A.G., and SANDLER, L. M., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Investigation of Plastic Deformation of Thin Polycrystalline Permalloy Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 6, Jun 71, pp 1220-1229

Abstract: The dependence of the elastic limit (yield point) of polycrystalline Permalloy films (thickness ~1000 Å, grain size ~ 250 Å) on temperature and rate of deformation and the dependence of the residual elastic grain deformation ε_{res} on certain factors are investigated. The investigation results show that the plastic deformation of thin polycrystalline films proceeds, even at room temperatures, according to the mechanism of diffusion creepage and is realized by means of boundary diffusion and slippage on the grain boundaries. The activation energy of the process, 27,500 cal/mol, proved to be very close to the activation energy of the boundary self-diffusion of Ni. The activation volume (7.1×10^{-23} cm3) was found to correspond to the volume of a single elementary grain. The derived data conform satisfactorily with the theory at $\varepsilon_{res} \lesssim 5 \times 10^{-5}$. This conformity changes for the worse at $\varepsilon_{res} \gtrsim 5 \times 10^{-5}$, the latter apparently being a result of disregarding the slippage on the grain boundaries. Five illustr., 13 formulas, 14 biblio. refs.

1/1

USSR

SANDLER, L. M. UDC: 681.325 681.327.11

"A Decimal Display Device for Remote Readout of an Analog Quantity"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277420, Class 42, Filed 30 May 1968, p 136

Abstract: This Author's Certificate introduces a decimal display device for remote readout of an analog quantity represented by its digital equivalent. The device contains an n-place binary code-position "shaft-code" transducer connected to a binary counter register which is connected, in turn, through the first AND circuit to a time interval flip-flop, to the second AND circuit, and to the output of the first oscillator. The installation also contains a delay line connected to the input of a synchronization flip-flop, to the output of the third AND circuit, and to the time interval flip-flop which is connected through a fourth AND circuit to the binary counter register. Also incorporated into the device is a decoder connected through a storage register and a binary decimal counter to the second AND circuit. Finally, the unit includes a second AND circuit. As a distinguishing feature of the patent, any possible conversion error is reduced by connecting the first and second inputs of the third AND 1/2

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SANDLER, L. M., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277420, Class 42, Filed 30 May 1968, p 136

circuit to the outputs of the first and second oscillators respectively, while the third input is connected to the output of the synchronization flip-flop.

USSR

UDC 621.187:669.018.2

CHERNYAKOVA, L. YE., SHUGAYENKO, V. K., VORONTSOV, N. M., SANDLER, N. I., and PATSEKA, R. F., Ukrainian Scientific Research Institute of Metals

"Electron-Microscope Study of Excess-Phase Precipitation in the Deformation of Alloy 36NKhTYu"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 16-19

Abstract: The structural properties of alloy 36NKhTYu containing (in %): 0.04 C, 1.1 Mn, 0.36 Si, 36 Ni, 12-13 Cr, 3 Ti, 1.2 Al, balance-Fe, were studied in relation to degree of deformation and tempering mode. Strip samples 0.15 mm thick were water quenched from 1100°C, rolled with a high degree of reduction (50-70%), and tempered at 600-750°C for two hours. It was found that decomposition of the solid solution in the alloy with precipitation of the metastable gamma'-phase $(NiFe)_3$ (TiAl) with an FCC lattice starts even in the deformation process: at 50% primarily along the grain boundaries and at 70% -- in the grain volume. Decomposition of the solid solution when deformed at 600-650°C is characterized by discontinuous precipitation along the grain boundaries and in 1/2

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USSR

CHERNYAKOVA, ET AL., Metallovedeniye i Termicheskaya Obrabotak Metallov, No 8, Aug 73, pp 16-19

the colonies of grains in the volume of metastable gamma'-phase particles; at 700-750°C it is characterized by continuous precipitation of finely dispersed gamma'-phase particles in the matrix volume. The formation of the stable intermetallic nu-phase, leading to softening, starts during alloy deformation after temperaing at 700°C for two hours. Three figures, eight bibliographic references.

2/2

USSR

UDC 669.295.053.2

ABRAMOV, D. S., SANDLER, R. A., SHIPULINA, R. Ye.

"Interaction of Titanium Tetrachloride with Wastes of Titanium Alloys in Salt Media of Alkali and Alkali Earth Metal Chlorides"

Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works of All-Union Scientific Research and Planning Institute for the Aluminum, Magnesium and Electrode Industry], No 79, 1971, pp 119-126, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G257 by G. Svodtseva).

Translation: Thermodynamic calculations are presented for the reactions occurring during the interaction of $TiCl_4$ with Ti-alloy wastes. It is thermodynamically most probable that Zr, Ti, Al, Mn and V will go over to the melt. Laboratory studies have shown that when Ti is extracted from wastes of alloys, 70% of the alloying elements go over into the melt in the following quantities (% of initial content in alloys): Al 45, Mn 60, Zr 40-50, V 35, Cr 10-15, Sn 6-8, Mo 2. The salt media has some influence on the transition of Zr, Cr and Sn to the melt. The degree of extraction of these metals in the medium of spent electrolyte is somewhat less than in a medium of NaCl. Al goes over to a Ti-containing melt in practically equal quantities in both media. The degree of

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USSR

UDC 669.295.053.2

ABRAMOV, D. S., SANDLER, R. A., SHIPULINA, R. Ye., Tr. Vses. N.-i. i Proekt. Inta Alyumin., Magn. i Elektrod. Prom-sti, No 79, 1971, pp 119-126.

extraction of Al increases with increasing content of Al in the melt and with increasing $TiCl_4$: Ti ratio. 3 Figures; 5 Biblio. Refs.

2/2

SANDLER, R. A.

UDC 669.295

EQUILIBRIUM RATIO OF LOWER TITANIUM CHLORIDES IN A MEDIUM OF MELTED SODIUM AND POTASSIUM CHLORIDES

[Article by R. A. Sandler, R. I. Yaskelyayman, and L. I. Ivanov, Leningrad Mining Institute, Department of Metallurgy of Light and Rare Metals; Ordzhonikidze, Izvestiya VUZ; Tsvetnaya Metallurgiya, Russian, No 6, 1971, signed to press 6 February 1971, pp 60-64]

Equilibrium of the reaction $2TiCl_3 + Ti \rightleftarrows 3TiCl_2$ in a medium of chlorides of alkali and alkali-earth metals has been studied by many investigators using both thermal [1-7] and electrochemical methods [8, 9]. The data from different investigators often do not agree. This concerns mainly the influence on equilibrium of those very important parameters such as temperature and total concentration in the titanium melt.

The basic research on investigating equilibrium has been done on the basis of low-concentration titanium-containing melts relative to the conditions of electrolytic production and refining of titanium. The data in these investigations, which are in accord, indicate that with transition from melts on a base of LiCl to melts on a base of CsCl the equilibrium is shifted to the left; additives of chlorides of alkali-earth metals to melts of alkali metals shift the equilibrium to the left. The investigations of equilibrium in high-concentration melts [1] did not permit determining any definite relationships.

At the present time, of greatest practical significance is the use of high-concentration melts in the two-stage sodium-thermal method for production of high-quality metallic titanium [10], and in the metal-thermal refining of titanium [11] and other wastes. The most widely used technologically acceptable salt medium in carrying out such processes is NaCl or KCl, as well as the spent electrolyte *

* The composition of the spent electrolyte in weight percent is: 76-79 KCl, 12-14 NaCl, 6-8 $MgCl_2$, 1-2 $CaCl_2$.

JPRS 55880
4 May 72

SANDLER, R. A.

JPRS 55880
4 May 72
USSR 669.295

EQUILIBRIUM RATIO OF LOWER TITANIUM CHLORIDES IN A MEDIUM OF MELTED SODIUM AND POTASSIUM CHLORIDES

[Article by R. A. Sandler, E. I. Yaskolyanen, and I. I. Ivanov, Leningrad Mining Institute, Department of Metallurgy of Light and Rare Metals; Ordzhonikidze, Izvestiya VUZ: Tsvetnaya Metallurgiya, Russian, No 6, 1971, signed to press 6 February 1971, pp 60-64]

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USSR

UDC 669.295

SANDLER, R. A., Leningrad

"Study of the Structure of Magnesium Thermal Titanium Sponge"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 95-101

Abstract: This work involved a study of the fine microstructure of titanium sponge using a high pressure porometer and specimens of separated sponge produced on commercial or pilot scale by magnesium thermal reduction of $TiCl_4$ as well as the lower chlorides of titanium from melted media. The results indicate that pores with radii of up to 30 A are present. With identical purity of the metal, the structure of the titanium sponge produced by reduction of $TiCl_4$ or the lower chlorides of titanium is similar. With a sufficient quantity of magnesium, intensification of the reduction process to a certain limit causes an increase in the residual content of the chlorine ion in the separated titanium sponge.

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USSR UDC 669.295

SANDLER, R. A., Leningrad

"Study of the Structure of Magnesium Thermal Titanium Sponge"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 95-101

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USSR

UDC 669.295

SANDLER, R. A., GULYAKIN, A. I., and VLASOV, V. A., Leningrad

"Secondary Structure of Titanium Sponge Produced by Magnesium-heat Reduction of Lower Chlorides"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 1970, pp 33-42

Abstract: Data are presented on investigations of the secondary structure of titanium sponge produced by magnesium-heat reduction of concentrated chloride titanium containing fusions. The increased quality of the titanium, produced through magnesium-heat reduction of its lower chlorides, contributes to the production of a less porous structure and to the reduction of the residual content of chlorine after vacuum separation. An increase in the rate of use of magnesium results in the formation of closed pores, specifically, in the sponge of the upper part of the titanium block. An increase in the temperature of the reduction process leads to the production of a higher-density secondary structure of the sponge and to the reduction of the residual content of chlorine.

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USSR

UDC 669.715'725'721(088.8)

FRIDLYANDER, I. N., GULIN, A. N., SANDLER, V. S., YATSENKO, K. P., KOLESNIKOVA, V. I., POLYAKOV, YE. S., YUDIN, A. F.

"Deformable Alloy Based on Aluminum"

USSR Author's Certificate No 310946, filed 24 Mar 70, published 1 Oct 71 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I627P)

Translation: A deformable alloy based on aluminum is proposed with the following composition: 15-40% Be, 1.5-8% Mg, 0.2-2.5% Li, and Al for the rest. In order to increase the corrosion strength, 0.1-0.6% Si can be introduced into the alloy. In order to increase the strength and plasticity, up to 0.2% Zr, Mn, Cr, and Ti introduced separately or jointly can be added. The proposed allpy permits variation of the properties within broad limits: σ_B 40-65 kg/mm^2, δ 9-12%, ψ 8-13% (the pressed ingots after quenching and aging). The alloy containing 24.4% Be, 4.3% Mg, 1.9% Li, and the rest Al after heat treatment has γ 2.3 g/cm^3, E 13,650 kg/mm^2, σ_B 59.5 kg/mm^2, δ 11.3%, ψ 11.5%. The heat treatment conditions are as follows: quenching from 450°, 40 minutes and aging at 120°, 24 hours. The proposed alloy is obtained by the method of melting and casting in a vacuum and in an inert environment with subsequent deformations. Obtaining the intermediate products is possible by the powder metallurgy methods. The material can

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USSR

FRIDLYANDER, I. N., et al., USSR Author's Certificate No 310946, filed 24 Mar 70, published 1 Oct 71

be used in rigid structural elements in which the defining factors are a combination of lightness, high rigidity with high strength at operating temperatures to 120-150° and under short-term effects, to 400°.

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USSR

UDC 620.18:620.17:669.71'725

FRIDLYANDER, I. N., YATSENKO, K. P., NEKRASOVA, G. A., SANDLER, V. S., SEMENOVA, Z. G., and GULIN, A. N.

"Laws of Variation of the Structure and Properties of Beryllium-Aluminum Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1970, pp 50-55

Abstract: This article contains a discussion of the laws of variation of the structure and properties of beryllium-aluminum hypereutectic alloys. Various amounts of magnesium were added to the alloy to produce various changes. By generalizing the results of x-ray micrography a diagram is constructed for the decomposition of a solid solution of aluminum-beryllium alloy with 30% Be and 5% Mg. The variation in mechanical properties of the same alloy is plotted for aging at 200°C and at 250°C. The strength of aluminum-berllium alloys as a function of the distance between the B-phase particles (the distance between the beryllium particles) is also plotted for Al-Be and Al-Be-Mg. The mechanisms of all these variations in structure and properties are discussed in detail.

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USSR

SANDLER, YU. B.

"Method of Two-Stage Statistical Analysis and Its Applications to Technology"

Metod Dvukhstupenchatogo Statisticheskogo Analiza i Yego Prilozheniya v Tekhnike [English version above], Moscow, Nauka Press, 1973, 191 p (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V199K)

Translation: A method and theory for two-stage statistical analysis are presented. Primary attention is given to the development of computational methods allowing optimal procedures to be constructed by computers. The book is designed for specialists interested in applications of mathematical statistics, primarily for engineers. A number of problems from the area of sampling quality control and reliability testing of products, and also from the area of the theory of signal detection, are studied. Author's view

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USSR

UDC 533.6.011

D'YAKONOV, YU. N., PECHILKINA, D. V. and SANDOMIRSKAYA, I. D.

"On the Calculation of the Supersonic Flow Past Bodies Under Large Angles of Attack"

Moscow, Sb. rabot Vychisl. tsentra Mosk. un-ta (Collection of Works of the Computer Center of Moscow University) No 19, 1972, pp 64-70 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4B295 by G. L. Stenchikov)

Translation: A method for calculating the flow past long, blunt bodies under a large angle of attack is described: the method is used when peculiarities of the type of shock wave, flow separation, etc., arise in the shadow region of the current. Outside the separation zone the flow is calculated with the aid of the ideal gas model, which, as is well known, in this case describes the process well. The distribution of pressure in the separation zone is given on the basis of experimental data and the results of calculations obtained for the region of smooth flow. For the calculation of three-dimensional steady flow in the supersonic region the grid method is used. The boundaries of the separation zone are considered flat and previously set. It is assumed that the gas flow in the separation region does not show influence on the purely gas-dynamic region, that is, no additional conditions are placed on the zone boundary.

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USSR

D'YAKONOV, YU. N., et al., Sb. rabot Vychisl. tsentra Mosk. un-ta, No 19, 1972, pp 64-70

However it is indicated that such a formulation in the case when the component of peripheral velocity normal to the separation surface is less than the local speed of sound, but comparable to it in value, is also incorrect but gives results close to reality.

Results of the calculation of a flow past a blunt cone under various angles of attack are presented. The use of the scheme practically removes the substantial limits which existed earlier on the length of the body calculated. The scheme is easily generalized to the case when the boundary of the zone of separation is given or is in the form of a function determined by the results of experimental investigations or found with the aid of gas-dynamic parameters obtained in the process of solving the problem.

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USSR UDC 528.721.15

SANDOMIRSKIY, A. B., Moscow Institute of Geodetic Engineers, Aerial Photography and Cartography

"Photometry of the Earth From the 'Zond' Space Stations"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Geod. i Aerofotos"yemka, No 4, 72, pp 109-114

Abstract: Photographs taken from "Zond-5," "-6" and "-8" were analyzed to determine the earth's stellar magnitude with use of the MF-4 microphotometer.

The "Zond-6" and "-8" photos, taken at 407,000 km, reveal a bright spot of light reflected back from the sun's rays, at a point where a mirrow reflection from a sphere with the earth's radius would be expected. This was a reflection from the earth's water surface. "Zond-5" photos did not show a bright spot, as the corresponding location was on dry land or cloud-covered sea.

Reproductions of the photography and calculations of stellar magnitude and other parameters accompany the article.

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1/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SOME STATISTICAL CHARACTERISTICS OF THE BRIGHTNESS INDICATRIX AT AN ALTITUDE OF 17.5 KM, STATISTICAL CHARACTERISTICS OF BRIGHTNESS
AUTHOR-(03)-SANDOMIRSKIY, A.B., KOPROVA, L.I., TRIFONOVA, G.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK S SR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 6, 1970, PP 577-584
DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--PHOTOMETER, AIRCRAFT MEASUREMENT, OPTIC BRIGHTNESS, INDICATRIX, EIGENVECTOR, ATMOSPHERIC OPTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0009 STEP NO--UR/0362/70/006/006/0577/0584

CIRC ACCESSION NO--AP0135509
UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE STATISTICAL CHARACTERISTICS OF THE BRIGHTNESS INDICATRIX FOR THE DAYTIME SKY MEASURED USING AN AIRCRAFT PHOTOMETER AT AN ALTITUDE OF 17.5 KM SIMULTANEOUSLY AT THREE WAVELENGTHS IN THE VISIBLE PART OF THE SPECTRUM. FOR EACH WAVELENGTH THE AUTHORS COMPUTED THE MEAN VALUES OF THE INDICATRIX, THEIR DISPERSIONS AND AUTOCORRELATION MATRICES AND CONSTRUCTED A SYSTEM OF EMPIRICAL ORTHOGONAL VECTORS. THERE IS A BREAK IN THE CORRELATION NEAR A SCATTERING ANGLE PHI IS APPROXIMATELY EQUAL TO 90DEGREES WITH A MARKED INCREASE IN THE VALUES OF THE CORRELATION COEFFICIENTS WHEN PHI GREATER THAN 90DEGREES. FOR THE INDICATRIX AT DIFFERENT WAVELENGTHS NEAR PHI IS APPROXIMATELY EQUAL TO 90DEGREES THERE IS A MINIMUM OF THE CROSS CORRELATION COEFFICIENT. THE AUTHORS GIVE A POSSIBLE INTERPRETATION OF THE CHARACTERISTICS OF BEHAVOIR OF THE CORRELATIONS. IT IS SHOWN THAT THE FIRST THREE EIGENVECTORS ENSURE OPTIMUM APPROXIMATION OF THE INDICATRIX. , FACILITY: INSTITUTE OF ATMOSPHERIC PHYSICS.

UNCLASSIFIED

Acc. Nr: AP0047359 Ref. Code: UR0589

PRIMARY SOURCE: Vestnik Khirurgii imeni I. I. Grekova, 1970, Vol 104, Nr 1, pp 96-98

THE CRITERIA OF EFFICACY OF CENTRAL HEMODYNAMICS AND WAYS OF CORRECTION OF ITS IMPAIRMENT IN BURN SHOCK

Pekarskiy, D. Ye.; Sandomirskiy, B. P.

The study of main indices of blood circulation in 165 patients in a state of burn shock has demonstrated that central and venous pressure and the circulating blood volume, as well as the type of relationship between these values are reliable criteria in determining how to exercise the influence on and select the means of medication and infusion—transfusion therapy for correction of hemodynamic disturbances.

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REEL/FRAME
19790885

1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--PREPARATION AND PROPERTIES OF AQUEOUS BUTYL RUBBER DISPERSIONS -U-

AUTHOR-(05)-GUSTOVA, L.P., GELLER, T.L., MAZINA, G.R., SANDOMIRSKIY, D.N., DOGADKIN, B.A.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 203-206

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BUTYL RUBBER, EMULSION, PARTICLE SIZE, POLYMER FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0400 STEP NO--UR/0069/70/032/002/0203/0206

CIRC ACCESSION NO--AP0113318

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113318

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDITIONS OF PREPARATION OF BUTYL RUBBER DISPERSIONS BY MILLING HAVE BEEN STUDIED. GREATER RIGIDITY OF POLYMER OR ITS MIXTURES FAVORS DISPERSION. THE COLLOID CHEMICAL PROPERTIES OF DISPERSIONS PREPARED WITH VARIOUS EMULSIFIERS HAVE BEEN EXAMINED. THE SMALLEST PARTICLE SIZE WAS OBTAINED WHEN DISPROPORTIONATED ROSIN WAS USED AS EMULSIFIER. IT HAS BEEN PROVED POSSIBLE TO OBTAIN FILMS FROM BUTYL RUBBER DISPERSIONS. THE PROPERTIES OF THESE FILMS HAVE BEEN ASSESSED. DECREASE IN THE AMOUNT OF EMULSIFIER DURING DISPERSION OR DUE TO SETTLING OF DISPERSIONS SUBSTANTIALLY INCREASES THE FILM STRENGTH.

UNCLASSIFIED

Acc. Nr: AP0036538

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1, pp 124-129

STUDY OF THE RADIATION CROSS-LINKING OF RUBBER IN SYNTHETIC LATICES AND ARTIFICIAL AQUEOUS DISPERSIONS

El'kina, I. A.; Sandomirskiy, D. M.; Dogadkin, B. A.

Summary

The radiolysis of synthetic rubber latices has been studied. The rate of radiation cross-linking of polymer in a latex is much greater than in the bulk. The polymer cross-linking efficiency in a latex depends on the polymer hydrocarbon structure and on the colloid-chemical nature of latices. Stabilizers with a cyclic structure and small globules decrease the cross-linking rate. The radiolysis does not change essentially the colloid-chemical properties of latices.

D.M.

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REEL/FRAME
19721386

7

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--TECHNOLOGICAL PROPERTIES OF TOOL STEELS -U-

AUTHOR--SANDOMIRSKIY, M.M.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2) 75-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TOOL STEEL, ALLOY DESIGNATION, ANNEALING, METAL DEFORMATION/(U)4KH4M1V3F LOW ALLOY STEEL, (U)4KH4MVF LOW ALLOY STEEL, (U)4KHNMVF LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1303 STEP NO--UR/0129/70/000/002/0075/0076

CIRC ACCESSION NO--AP0106080
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106080

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEW HIGH TEMP. TOOL STEELS 4KHNMVF, 4KH4MIV3F, AND 4KH4MVF WERE STUDIED FOR TENDENCY TO SUPERHEATING, ANNEALABILITY, DEFORMABILITY, RESISTANCE TO HARDENING, AND HEAT EROSION. THE RESULTING PROPERTIES OF THESE NEW HIGH STRENGTH TOOL STEELS ALLOW THEIR USE IN THE MANUF. OF PARTS FOR HEAVY DUTY PRESSES, AND PARTS FOR INSTRUMENTS AND TOOL PRESSES. THESE PARTS MAY BE ALSO HEAT TREATED IN LARGE SCALE SIZES.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SPONTANEOUS PNEUMOTHORAX IN CONIOTUBERCULOSIS -U-

AUTHOR--SANDOVSKIY, O.YA.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIVA, 1970, NR 6, PP 29-32
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUBERCULOSIS, SYNDROME, DIAGNOSTIC MEDICINE, LUNG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0537 STEP NO--UR/0391/70/000/006/0029/0032

CIRC ACCESSION NO--AP0131160

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131160

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR ANALYZES 16 CASES OF SPONTANEOUS PNEUMOTHORAX WHICH DEVELOPED IN 15 FORMER MINERS WHO SUFFERED FROM FAR ADVANCED FORMS OF CONIOTUBERCULOSIS. IN SOME INSTANCES THIS COMPLICATION IS FOUND TO MANIFEST ITSELF BY A SPARSE SYMPTOMATOLOGY WITHOUT ANY MARKED PAIN SYNDROME. CASES OF A GRADUAL DEVELOPMENT OF THE COMPLICATION ARE ASSOCIATED WITH THE PRESENCE OF ADHESIONS IN THE PLEURAL CAVITY AND RIGIDITY OF FIBROUSLY ALTERED PULMONARY TISSUE. THE AUTHOR BELIEVES THAT INSUFFICIENT KNOWLEDGE BY PHYSICIANS OF THE FORM FRUSTE IN THE CLINICAL PICTURE OF THIS COMPLICATION RESULTS IN A LATE DIAGNOSIS AND POINTS UP HIGH LETHALITY AMONG SUCH PATIENTS WITH LOW EFFICACY OF CONSERVATIVE THERAPY AND A LACK OF INDICATIONS FOR MAJOR OPERATIVE INTERVENTIONS. THE PRESENCE OF COMPENSATORY DEVELOPING MACROBULLOUS ALTERATIONS OF THE PULMONARY TISSUE, PARTICULARLY IN MARGINAL AREAS OF THE LUNGS IS CONSIDERED TO BE A PREDISPOSING FACTOR IN THE DEVELOPMENT OF SPONTANEOUS PNEUMOTHORAX IN SUCH PATIENTS. FACILITY: GORODSKOY PROTIVOTUBERKULEZNYY DISPANSER.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ON THE ANALYSIS OF THERMOSTIMULATED EXCITATION CURVES -U-

AUTHOR-(02)-SANDOMIRSKIY, V.B., ZHDAN, A.G.

COUNTRY OF INFO--USSR

SOURCE--SOLID STATE ELECTRONICS (GB), VOL. 13, NO. 1, P. 69-73 (JAN. 1970)

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON TRAP, THERMAL EXCITATION, CALCULATION, NUMERIC SOLUTION, TEMPERATURE DEPENDENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0092 STEP NO--UK/0000/70/013/001/0069/0073

CIRC ACCESSION NO--AP0102182

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0102182

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT GROSSWEINER EXPRESSION (1953) FREQUENTLY USED FOR THE EVALUATION OF TRAP DEPTHS (E SUBT) BY MEANS OF THERMOSTIMULATED EXCITATION (TSE) CURVES (GLOW CURVES) DOES NOT COVER ALL POSSIBLE EXPERIMENTAL CASES. MOREOVER EVEN WITHIN THE LIMITS OF ITS APPLICABILITY THIS FORMULA IS LESS ACCURATE THAN ASSUMED BY GROSSWEINER. THE AUTHORS SHOW THAT THE NUMERICAL SOLUTION OF THE EQUATION, WHEREFROM GROSSWEINER FORMULA WAS DERIVED, RESULTS IN THE EVALUATION OF E SUBT WITH ANY DESIRABLE ACCURACY FOR A LARGE RANGE OF EXPERIMENTAL CONDITIONS. FOR THIS PURPOSE A NUMERICAL UNIVERSAL CURVE X SUBC(P) IS USED WHERE X SUBC(P) EQUALS E SUBT-KT SUBM, P EQUALS T SUBM-T PRIME, T SUBM IS THE TEMPERATURE OF TSE MAXIMUM AND T IS THE TEMPERATURE AT WHICH THE LOW TEMPERATURE SIDE OF THE TSE CURVE ATTAINS ONE HALF OF ITS MAXIMUM HEIGHT. A SIMPLE ANALYTICAL EXPRESSION IS DERIVED FOR THE UNIVERSAL CURVE X SUBC(P) WITH AN ACCURACY OF BETTER THAN PLUS OR MINUS 0.6 PER CENT. FACILITY: INST. RADIOTECHNICS ELECTRONICS, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 613.6:/629.12:667.6(047)

SANDRATSKAYA, S. E., Institute of Water Transport Hygiene

"Problems of Hygiene and Toxicology in Connection with the Use of Varnishes and Paints in the Shipbuilding and Ship Repair Industry"

Moscow, Gigyena Truda i Professional'nyye Zabolevaniya, No 1, 1970, pp 40-44

Abstract: Many of the varnishes and paints used in the shipbuilding industry contain toxic components, which may be released into the air when applied, and for a long time thereafter (aromatic hydrocarbons, lead, phenol, formaldehyde, epichlorohydrin, vinyl chloride, styrene, etc.). Exposure to the epoxy resins, for example, may cause eye, respiratory, and skin disorders, neurasthenia, autonomic and vascular dysfunction, gastrointestinal disturbances, and mild anemia. Laboratory tests showed that these and other paint bases disrupt a variety of biochemical processes in experimental animals. It is suggested that these toxic substances be replaced with less hazardous ones. Until others are available, the paints and varnishes should be applied under conditions of good ventilation, with the workers wearing individual protective masks.

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Acc. Nr.: AP0029425 Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena Truda i Professional'nyye Zabolevaniya, 1970, Nr 1, pp 40, 44

PROBLEMS OF HYGIENE AND TOXICOLOGY WITH SPECIAL REFERENCE TO THE USE OF PAINTS AND VARNISHES IN SHIP-BUILDING AND SHIP REPAIR INDUSTRY

S. F. Sandratskaya

Summary

In ship-building industry use is made of paints and varnishes containing various high polymers among which most dangerous toxicologically are compositions comprising as base elements phenolformaldehyde and epoxide resins, and also those which include styrene, diisocyanates, lead pigments and organic solvents of benzene series. The release of toxic components into the environment presents hazards both in the process of coating during construction and repair of ships and in the course of long-term cruises into different climatic regions of the globe with round-the-clock confinment of the crew members to the internal environment of the ship. The objective of medical investigation should be a thorough sanitary-chemical and toxicological selection of compositions under experimental conditions, stricktly regulated content therein of toxic substances and their replacement with less toxic ones, study and elaboration of measures providing for prevention of general and occupational morbidity among dockworkers and the ship crews.

REEL/FRAME

19681021

Acc. Nr. AP0050715 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code UR0368

105540r Conclusions about the properties of a growth curve showing the intensity of the radiation of a spectral line. Ovechkin, G. V.; Sandrigailo, L. E.; Bakhtovarshoev, Sh. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 27–34 (Russ). An empirical correction is made for growth curves of spectral line radiation intensities of Cu I 2441, 2824, 2961, and 5105 Å. Calcns. by using the modified formula indicated that the limiting concns. of atoms varied not only for each line, but also for different discharge conditions, such as the initial concn. of Cu and the heterogeneity of the samples; the latter was found for Na and Cr mixts.

J. Beller

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REEL/FRAME
19810713

21

1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--MIXED COMPLEXES OF THE RARE EARTH ELEMENT IONS WITH O,O'DIHYDROXYCHROMENOLS AND 2,THENOYLTRIFLUOROACETONE AND THEIR USE IN

AUTHOR-(03)-POLUEKTOV, N.S., SANDU, M.A., LAUYER, R.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM.; 25: 899-903 (MAY 1970)

DATE PUBLISHED----MAY70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METAL COMPLEX COMPOUND, RARE EARTH COMPOUND, ORGANIC COMPLEX COMPOUND, FLUORINATED ORGANIC COMPOUND, ACETONE, BENZENE, SOLVENT EXTRACTION, PHOTOMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1179 STEP NO--UR/0075/70/025/000/0899/0903

CIRC ACCESSION NO--AP0138194

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IONS OF RARE EARTH ELEMENTS FORM MIXED COMPLEX COMPOUNDS WITH THE REAGENTS OF THE DIHYDROXYCHROMENOL GROUP WITH 2 THENOYLTRIFLUOROACETONE, WHICH CAN BY EXTRACTED WITH BENZENE. THE COMPOSIITON AND PROPERTIES OF THE COMPOUNDS FORMED WERE STUDIED. AN EXTRACTION PHOTOMETRIC METHOD WAS DEVELOPED FOR DETERMINING YTTRIUM (OR ANY OTHER ELEMENT OF THE YTTRIUM SUBGROUP) IN THE PRESENCE OF LANTHANUM. FACILITY: INST. OF GENERAL AND INORGANIC CHEMISTRY, ODESSA.

UNCLASSIFIED

USSR UDC 548.55 : 546.45-31

BUDNIKOV, P. P., and SANDULOV, D. B.

"Preparation and Study of Beryllium Oxide Single-Crystal Whiskers"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 8, Aug 70, pp 1649-1653

Abstract: Beryllium oxide single-crystal whiskers were obtained by heating metallic beryllium filings in an argon environment. The heating was done in a quartz glass vessel at 1450-1500°. The metallic beryllium filings were placed on a beryllium oxide substrate. A microscopic study showed that most of the whiskers have a metallic bead at the end. In some cases several whiskers grew from one bead. It is assumed that the crystal growth mechanism is as follows: vapor → liquid → whisker. The resultant whiskers underwent chemical and spectral analyses. The content of the principal impurities detected by spectral analysis did not exceed $6.0 \cdot 10^{-3}$ wt. percent, with a relatively high silicon content. Ring electron-diffraction patterns were taken in an attempt to determine the phase of which the bead consists. Beryllium oxide lines were found to be present, as well as lines with the interplanar spacings 1.587, 1.425, 1.071, 1.035, and 0.970 Å, which could not be identified. A more detailed study of the crystals on a superhigh-voltage electron microscope

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BUDNIKOV, P. P., and SANDULOV, D. B., Zhurnal Prikladnoy Khimii, Vol 43, No 8, Aug 70, pp 1649-1653

with an accelerating voltage of 400 kV (557 kev) showed that the whisker surface is smooth even under great magnifications. No twinning is observed in the crystals. The strength characteristics of the whiskers were determined on an instrument designed by V. N. ROZHANSKIY, intended for tensile testing of whiskers and simultaneous recording of tension curves on an N-700 oscillograph.

The authors thank V. N. ROZHANSKIY and A. S. PREDVODITELEV for their advice and assistance.

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SANDULOVA, A. V.

RAN / R-760/5-Nov-73 79
Dec 72

Nikiforov, Yu. N., V. A. Yanushkevich, and A. V. Sandulova. Change in electrical properties of p-Si crystal whiskers from the action of giant laser pulses. FiKhOM, no. 3, 1972, 132-134.

Laser-induced change in the resistivity ρ of p-Si whiskers is described. The whiskers were grown along the [111] axis, had a hexagonal cross section, and ranged in length from 3 to 7 mm. Specimens were exposed to 50 nsec giant pulses from a ruby laser, with the laser beam normal to the crystal axis. Impact densities were varied over several tens of joules/cm^2, up to the damage threshold which was in the range of 35 - 45 j/cm^2. The data are presented as resistivity variation $\Delta R/R_0$ in exposed specimens as functions of whisker geometry, ambient temperature and initial ρ. Typical results at an exposure 22 j/cm^2 show a sharp rise in R by about 12-15%, followed by an exponential decay back to about the initial value, at a time constant ≈20 milliseconds. Of the possible mechanisms considered for the alteration effect (photoeffect, crystal heating, piezoeffect, defect formation) it is shown that point defect formation is the most probable factor. Defect levels, estimated to reach 10^{17}/cm^3, were effectively annealed out in all cases in 30 milliseconds or less.

Boyko, Yu. I., and A. K. Yemets. Study of laser self-focusing in alkali-halide single crystals, according to data on shift of the damage center. DAN, v. 206, no. 2, 1972, 319-322.

Experimental results are described of laser damage phenomena in KCL and KBr crystals, with the object of determining the

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UDC 621.315.592

SANDULOVA, A. V., GORTYNSKAYA, I. D., NOSENKO, A. YE., GONCHAROV, A. D., L'vov Polytechnic Institute

"Optical and Photoelectric Properties of Thin Layers of Tellurium Obtained by Compression of a Melt"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 976-977

Abstract: A study was made of the optical absorption and reflection spectra and the photoconductivity of model crystalline layers of tellurium in the spectral range of 2.5-15 microns at temperatures of 390°K. The studies were performed in nonpolarized light, and modulated illumination was used. The characteristic curve of the spectral distribution of the photoconductivity of thin layers of tellurium obtained by compression of a melt at 90°K is presented. Two peaks in the short-wave absorption edge region are observed. The distinguishing feature of the spectral curves of the photoresponse are the presence of a weak peak in the vicinity of 7 microns and a sharp increase in the photoconductivity in the longer wave region. Explanations are offered for these effects. The simplicity of obtaining model crystalline tellurium layers and the presence of photoconductivity in the ~3.5 and ~11 micron range make these layers prospective for the manufacture of photoreceivers to operate at the temperature of liquid nitrogen.

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JPRS 59268
6-73

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VIII-11. STUDY OF THE EFFECT OF GROWTH CONDITIONS ON THE MORPHOLOGY AND PERFECTION OF SINGLE INDIUM ARSENIDE CRYSTALS GROWN FROM THE GAS PHASE

[Article by A. V. Sandulova, E. G. Zaydovskiy, V. A. Prokhorov, L'vov; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 113]

This paper is devoted to a study of a number of factors affecting the morphology and perfection of single crystals of one of the interesting semiconductor compounds A^3B^5 -- indium arsenide -- grown in the closed gas transport process. The basic ones of these factors are the following: the thermal conditions, the type and concentration of transporting agents, the impurities introduced during the growth process. An experimental study of the heterogeneous equilibriums of $InAs-X_2[X_2-Cl_2, Br_2, I_2]$ permitted the conclusion to be drawn with respect to the selection of the temperatures of the crystallization zones and the source and concentrations of transporting agents insuring maximum effectiveness of the transport process. The variation of the temperature conditions, the type and concentration of transporting agent permitted single crystals of different habit and different degree of perfection to be obtained. The most perfect crystals in structural respects turned out to be the single crystals obtained during the iodine process [an explanation of this fact is proposed]. Highly pure indium arsenide [impurity concentration of $10^{17}cm^{-3}$] was used in the experiments. The observed forms of single crystal growth combined with the data on determining the quantitative characteristics of the transport and crystallization processes indicate that growth takes place according to the vapor-crystal mechanism.

A study was made of the effect of certain admixtures on the transport and crystallization processes of single indium arsenide crystals grown from the gas phase. It was established that the presence of these impurities in the reaction chamber causes growth of single crystals of entirely different forms [filamentary, ribbon, and so on]. In addition, a study was made of the growth of indium arsenide on a monocrystalline substrate (111) on which impurities were deposited in advance in a vacuum. Analysis of the experimental results demonstrates that in the presence of defined impurities the growth of the single indium arsenide crystals takes place according to the vapor--liquid--crystal mechanism.

SANDULOVA, A.V.

SANDULOVA, A. V.

JPRS 59803
6-73

IX-3. PHYSICOCHEMICAL STUDIES OF THE PROCESSES OF GROWING AND ALLOYING GaP CRYSTALS IN A CLOSED GAS TRANSPORT SYSTEM

[Article by A. V. Sandulova, P. I. Ostrovskiy, L'vov; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, 12-17 June 1972, p 117]

An analysis was made of the growth conditions of simple GaP crystals in the Ga-I gas transport system by the vapor-liquid-crystal mechanism with Cu, As, Pt, Zn, Cu and O admixtures.

A study was made of the effect of the admixtures on the morphology of high-resistance ($\rho > 10^9$ ohm) acicular crystals in the <111> direction; the area is a three-sided prism with smooth faces (111); the lateral faces parallel to the <110> direction. The crystals grown from Pt are six-sided prisms of the dendritic type with a growth direction <111> and lateral faces (211). In the GaP-I-Zn and Cd systems under the conditions of large gradients (ΔT = 300-400° C), strongly alloyed crystals are grown ($n = 3.5 \cdot 10^{-3}$ ohm-cm).

A thermodynamic calculation was made of the GaP-Ga-I-Zn system which offered the possibility of establishing the relation between the initial concentration of zinc and its concentration in the vapor and condensed phases for various temperatures and quantities of the transporting agent.

SANDULOVA, A. V.

JPRS 59908
6-73

II-4. PYSIOCHEMICAL ANALYSIS OF THE $In-P-I_2$ SYSTEM AND THE MORPHOLOGY OF INDIUM PHOSPHIDE CRYSTALS GROWN BY THE CHEMICAL GAS TRANSPORT REACTION METHOD

[Article by A. V. Sandulova, A. K. Zaitsev, Ye. D. Dolgov, S. Nevlak, R. M. Skoropad, L'vov; Novosibirsk, III Simpozium po Protsessam Rosta i Vzaimodeystviya Kristallov i Plenok, Russian, 12-17 June, 1972, p 14]

In this paper the authors have investigated the possibility of chemical processes taking place in the $In-P-I_2$ system. Studies were made of the basic reactions which can participate to one degree or another in the process of transport and crystallization of indium phosphide (InP).

The temperature dependance of the equilibrium constants of the postulated reactions in the temperature range of 600°K to 1200°K was calculated, and a physicochemical analysis was made of these reactions.

On the basis of the calculations, filamentary and platy InP crystals were grown which reached a length of 3-5 mm and 0.4 mm in cross section. The external faces of such crystals are perfect, mirror smooth.

It was established that the InP crystals grow in three basic crystallographic directions [111], [110], [211].

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UDC 621.315.592:546.682'86

SANDULOVA, A. V., PETRUSHKO, I. A., KHUTORYANSKIY, L. D.

"Thin Layers of Indium Antimonide with High Mobility Obtained by Liquid Metal Pressure"

Elektron. tekhnika. Nauchno-tekhn. sb. Kriogen. elektronika (Electronic Engineering. Scientific and Technical Collection. Cryogenic Electronics), 1970, vyp. 1 (2), pp 91-96 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G494)

Translation: Thin layers of indium antimonide are obtained by squeezing a molten drop of InSb between two parallel substrates with subsequent crystallization. The electrophysical properties of the thin layers are investigated in a broad temperature range. The mobility of the carriers in the samples with electron conductivity reaches 70,000 cm^2/volt-second at room temperature. The bibliography has 11 entries.

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Acc. Nr: AP0106263

Abstracting Service: INTERNAT. AEROSPACE ABST.

Ref. Code: UR0120

A70-28187 # Ohmic contacts for gallium arsenide single crystals (Omicheskie kontakty k monokristallam arsenida galliia). A. V. Sandulova, S. S. Varshava, and K. S. Shcherbii (L'vovskii Politekhnicheskii Institut, Lvov, Ukrainian SSR). *Pribory i Tekhnika Eksperimenta*, Jan.-Feb. 1970, p. 224, 225. 5 refs. In Russian.

Description of a technique for obtaining ohmic contacts attached to gallium arsenide single crystals having the form of filaments or ribbons grown from the gaseous phase. The contacts are obtained when microwires are welded-on with the aid of an ac furnished by an additional electrode, using alcohol as a protective medium. The ohmic contacts have linear current-voltage characteristics and provide resistances from 1/10k to 1/100k ohm/sq cm in low-resistance n and p type specimens. V.Z.

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REEL/FRAME
1388150?

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UDC: 621.382.032.27

USSR

SANDULOVA, A. V., GONCHAROV, V. P., SYDIR, B. I., and RYBAK, V. M.

"Ohmic Contacts for GaSb Monocrystals"

Moscow, Pribory i tekhnika eksperimenta, No 4, July-August, 1972, pp 216-218

Abstract: This paper describes a practical method for welding ohmic contacts to n and p type monocrystals of GaSb. The device used in this method is a little stand with a self-contained oven which keeps the flux, under the surface of which the welding is done, molten. To avoid strong local heating, which leads to the formation of acceptor impurities and the consequent reduction in quality of the contact, the crystal is given preliminary heating to 300° C. The contacts used for the p-type crystal were gold wires measuring 30 microns in diameter. A diagram and description of the stand is given together with such details as the method of reducing the contact resistance. A photograph of the contact welds is reproduced, and the volt-ampere characteristic of the ohmic contact, showing its perfect linearity, is plotted. The authors are associated with the Lvov Polytechnical Institute.

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Acc. Nr: AP0043869 Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 2, pp 27-32

DYNAMICS OF IMMUNE RESPONSE IN MICE FOLLOWING ADMINISTRATION OF PERTUSSIS MONOVACCINE

Khazanova, L. Ye.; Stanislavskiy, Ye. S.; Khromacheva, R. P.; Sandulova, S. L.

The authors studied the relationship of the level of various classes of specific immunoglobulins in the blood and resistance of vaccinated mice to experimental pertussis meningoencephalitis in various schemes of administration of the antigen.

Experiments were carried out on mongrel and inbred (CBA abd C57BL) mice. Agglutination and passive hemagglutination reactions were used for detection of Ig M- and Ig G-antibodies. Single immunization of mice with corpuscular pertussis vaccine caused a weak response (according to the data of antibody production). Administration of high subtoxic doses of the vaccine was followed by preponderant synthesis of Ig M-antibodies. Mice immunized one were resistant against meningoencephalitis, in the absence of antibodies detectable in the blood. Second administration of pertussis vaccine to mice had a marked stimulating effect on the syntnesis of antibodies, particularly of Ig G. However, the level of specific resistance failed to show considerable change or reduction.

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REEL/FRAME 19770293

AP0043869

As a result of vaccination intact mice of C57BL species, highly sensitive to pertussis, acquired the capacity to elaborate specific resistance; less sensitive mice of CBA line were incapable of doing so.

Blood antibody level of mice failed to correlate with their resistance against pertussis meningoencephalitis.

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UDC 517.5

SANIKIDZE, D. G., Computer Center of the Academy of Sciences Georgian SSR

"Quadrature Processes for Cauchy-Type Integrals"

Moscow, Matematicheskiye Zametki, Vol 11, No 5, May 72, pp 517-526

Abstract: The article considers the quadrature process

$$\int_{-1}^{+1} \rho(t)\frac{f(t)}{t-x}dt \approx \sum_{k=1}^{n} \alpha_{k,n}(x) f(x_k^{(n)}) \quad (x \in (-1,1);\ n=1,2,\ldots), \qquad (1)$$

where ρ is a given function summable on $[-1, +1]$ and the singular integral is considered in the sense of the principal value. The nodes $\{x_k^{(n)}\}_{k=1}^{n}$ are considered to be numbered in increasing order and, given any k and n,

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SANIKIDZE, D. G., Matematicheskiye Zametki, Vol 11, No 5, May 72, pp 517-526

to belong to the segment $[-1, +1]$. The functions $\{\alpha_{k,n}(x)\}_{k=1}^{n}$ are assumed to be independent of f. The article studies questions of the convergence of quadrature process (1) when f belongs to some defined class of functions. A class of functions which are continuously differentiable on the segment $[-1, +1]$ is given particular consideration. The convergence of a specific quadrature process is considered in the case of the weighting function

$$\rho(t) = (\sqrt{1-t^2})^{-1},$$

subject to various assumptions regarding f.

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USSR

UDC 518:517.392

SANIKIDZE, D. G.

"Approximation Computation of Curvilinear Singular Integrals"

Tsilisi, Seminar In-ta prikl. mat. Tsilis. un-t. Annotatsii dok. -- Sbornik (Seminar of the Applied Mathematics Institute of Tbilisi University, Annotations of Reports -- Collection of Works), Vol 3, 1970, pp 15-17 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B975, by I. Shelikhova)

Translation: A quadrature formula is derived for computing (the principal value) of the curvilinear singular integral

$$\int_L \frac{\varphi(z)}{z-t}\,dz,$$

where L is an arbitrary piecewise-smooth line on a complex plane and t is any point in L. An evaluation of the residual term, uniform with respect to t on any closed set $E \subset G$, is obtained (G is a set consisting of points on the line L, with the exception of its end points).

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1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SOUND ABSORPTION IN A SUPERFLUID LIQUID UNDER CONDITIONS OF DAMPING OF THE NORMAL COMPONENT -U-

AUTHOR-(02)-KARCHAVA, T.A., SANIKIDZE, D.G.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1843-1847

DATE PUBLISHED--------7C

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SOUND ABSORPTION, ABSORPTION COEFFICIENT, SUPERFLUIDITY, HELIUM, SOUND PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0021 STEP NO--UR/0056/70/058/005/1843/1847

CIRC ACCESSION NO--AP0127671

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127671

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION COEFFICIENTS OF FIRST AND SECOND SOUND IN SUPERFLUID HELIUM CONNECTED WITH SURFACE AND VOLUME DISSIPATIVE EFFECTS, UNDER THE SPECIFIC CONDITIONS OF PROPAGATION OF SOUND IN NARROW CHANNELS INVOLVING DAMPING OF THE NORMAL COMPONENT OF THE LIQUID, ARE CALCULATED. IT IS SHOWN THAT THE CONTRIBUTION OF VARIOUS DISSIPATIVE PROCESSES TO SOUND ABSORPTION DEPENDS ON THE DEGREE OF DAMPING OF THE NORMAL COMPONENT. FACILITY: INSTITUT KIBERNETIKI, AN GRUZINSKOY SSR.

UNCLASSIFIED

UNCLASSIFIED

TITLE--SYNTHESIS OF 4,ARYLVALERIC ACIDS, 5,ARYLHEXANOLS, AND SOME OF THEIR HALO DERIVATIVES -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-LAGIDZE, O.R., SANIKIDZE, N.S., NALATSIDZE, YU.L.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(2), 333-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GRIGNARD REAGENT, HEXANOL, BROMINATED ORGANIC COMPOUND, CHLORINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1223

STEP NO--UR/0251/70/057/002/0333/0336

CIRC ACCESSION NO--AP0128641

UNCLASSIFIED

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0128641 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PREPNS. OF ARCHMECH SUB2 CH SUB2 CO SUB2 H (I), ARCHMECH SUB2 CH SUB2 COCL (II), ARCHME(CH SUB2) SUB4 OH (III), AND ARCHME(CH SUB2) SUB4 BR (IV) STARTING WITH ARCHMECH SUB2 CH SUB2 BR (V) ARE DESCRIBED. SOLID CO SUB2 WAS ADDED TO A GRIGNARD REAGENT PREPD. FROM MG AND V (AR EQUALS PH) (VI) IN ET SUB2 O WITH COOLING UNTIL A THICK MASS WAS OBTAINED, A MIXT. OF CONCD. HCL AND H SUB2 O ADDED GRADUALLY WITH COOLING, AND THE PRODUCT WORKED UP IN THE USUAL MANNER TO GIVE I(AR EQUALS PH) AS SHOWN IN THE TABLE SHOWN ON MICROFICHE (THE OTHER I WERE PREPD. SIMILARLY). I AND DRY SOCL SUB2 (AT A M RATIO OF 1:1.5) HEATED IN DRY REFLUXING C SUB6 H SUB5 FOR 4-5 HR GAVE THE CORRESPONDING II. A SOLN. OF ETHYLENE OXIDE AND ABS. ET SUB2 O WAS ADDED DROPWISE TO A GRIGNARD REAGENT PREPT. FROM MG AND VI IN ABS. ET SUB2 O WITH COOLING AND STIRRING, THE MIXT. BOILED MILDLY FOR 1-1.5 HR, COOLED, AND WORKED UP TO GIVE III (R EQUALS PH) (VII) AS GIVEN IN THE TABLE. A MIXT. OF VII, 40PERCENT AQ. HBR, AND CONCD. H SUB2 SO SUB4 WAS HEATED AT 120-40DEGRESS FOR 10-12 HR AND DILD. WITH H SUB2 O, THE OILY LAYER FORMED EXTD. WITH ET SUB2 O, DRIED, EVAPD., AND THE RESIDUE TREATED WITH CONCD. H SUB2 SO SUB4 TO REMOVE IMPURITIES, WASHED WITH WATER UNTIL NEUTRAL, DRIED OVER CACL SUB2, AND DISTD. IN VACUO TO GIVE IV (AR EQUALS PH) AS GIVEN IN THE TABLE.

UNCLASSIFIED

USSR

TAKIBAYEV, ZH. S., BOOS, E. G., SANIKO, L. A., TEMIRALIYEV, T., ANTONOVA, M. G., YERMILOVA, D. I., MUKHORDOVA, T. I., KHOLMETSKAYA, A. V., and FEDOSEYENKO, V. V., Institute of Nuclear Physics, Academy of Sciences Kazakh SSR

"Study of Dynamics of Resonance Production in Four-Track Proton-Proton Interactions at Momentum of 10 Gev/c"

Moscow, Yadernaya Fizika, Vol 13, No 1, 1971, pp 113-123

Abstract: The article gives an analysis of 1800 four-track proton-proton interactions recorded in an 81-cm Saclay hydrogen bubble chamber irradiated with protons with a momentum of 10.01± 0.01 Gev/c on the CERN synchrotron. The following reactions are considered:

$$pp \rightarrow pp\pi^+\pi^-, \quad (1)$$

$$pp \rightarrow pp\pi^+\pi^-\pi^0, \quad (2)$$

$$pp \rightarrow p\pi\pi^+\pi^+\pi^-, \quad (3)$$

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TAKIBAYEV, ZH. S., et al., Yadernaya Fizika, Vol 13, No 1, 1971, pp 113-123

Nucleon and meson resonance production cross-sections are determined and the contribution of two-particle reactions studied. It is shown that pion production in all the channels considered is accompanied in most cases by nucleon resonance production. The contribution of boson resonances, which is greatest in the channel with π^0 meson production, does not exceed 10 percent of the reaction channel cross-section. The use of the maximum momentum method permits estimates of the cross-sections for different quasi-two-particle reactions. The cross-sections of the dynamic states being observed differ considerably in channels (2) and (3), where the number of pions and nucleons coincides. This may be due to changes in the nucleon charge in inelastic pp interactions.

Acc. Nr: AP0034716

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15, Nr 2, pp 40-44

THE EMPLOYMENT OF TRITIUM OXIDE FOR THE STUDY OF THE DYNAMICS OF WATER METABOLISM IN ACUTE CEREBROCRANIAL INJURY

Sanikidze, V. D.; Bogdanov, K. M.; Romanovskaya, L. L.

Summary

A disturbance of the water metabolism in rabbits with an acute injury of the brin complicated by edema occurs during the first hours after trauma, this being testified by disordered discharge of tritium oxide from the blood channel into the intercellular water. During the subsequent days the process stabilizes and differs insignificantly from the dynamics of the water metabolism in controls.

D.M.

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REEL/FRAME

19711422 02

Devices

USSR

UDC 621.383.292

SANIN, I.V., MARKOV, G.N., KRIVENKO, A.I.

"Single-Electron Regime Of FEU [Photomultiplier]--65"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronnoluch. i fotoelektr. pribory (Electronic Technology. Scientific-Technical Collection. Electron Beam And Photoelectric Devices), 1970, Issue 3(17), pp 38-41 (from REh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A257)

Translation: A method is described for measurement of the distribution of the output pulses of a photomultiplier (FEU), and the results are presented of the measurement of the distribution of single-electron pulses of the FEU-65. The limits of the plateau of the counter characteristic curve are established as well as the possibility of use of the Pearson criterion for evaluation of the number of afterpulses of the FEU-65. Summary.

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USSR

UDC 547.26'118

SHEPELEVA, YE. S., SANIN, P. I., OLEYNIK, D. M., BATRIY, YE. I. and
POLYAKOVA, A. A.; Institute of Petrochemical Synthesis imeni A. V. Top-
chiyev, USSR Academy of Sciences, Moscow

"Phosphonic Derivatives of Adamantane"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 608-611

Abstract: The phosphonic derivatives of adamantane which have a carbon-
phosphorus bond have only recently been described in the chemical literature.
As is well known, one method of synthesizing organophosphorus compounds with
such a bond is that of oxidizing chlorophosphonization -- that is, the reaction
of halogen derivatives of trivalent phosphorus (usually phosphorus trichloride)
with various hydrocarbons in the presence of oxygen. The purpose of this
study was to test this method in obtaining phosphonic adamantane derivatives.
To an adamantane solution within excess of phosphorus trichloride was intro-
duced dry oxygen, the temperature of the reaction mixture being held at +3 to
-5°C for 26-30 hrs. This yielded adamantylphosphonic dichloride. The authors
also produced the methyl ester of adamantylphosphonic acid by reacting the acid
dichloride with sodium methylate in a toluene solution, with heating. Nine
derivatives of a.-p. acid were synthesized (including four isomeric forms), for

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USSR

SHEPELEVA, YE. S., et al., Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 608-611

which boiling points, compositions and spectra (infrared, mass and proton magnetic resonance) were obtained.

Tables of physico-chemical constants and suggested reaction schemes are included with the paper. Some of the data obtained differ from those published by H. STEPHER and W. DICTER in 1969.

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SANIN, P.I.

Science USSR

JPRS 56166

5 June 1972

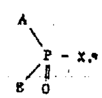
UDC 547.26'118

SYNTHESIS AND INVESTIGATION OF PHOSPHORIC ACID ESTERS CONTAINING A TRICHLORMETHYL GROUP. THE PREPARATION CHLOPOSFOL

[Article by Ye. S. Shepeleva, M. S. Borodach, P. I. Sanin, A. P. Gel'fer, Yu. S. Kagan, O. Ya. Kim, M. L. Tarakhovskiy, M. V. Timoshenko, I. L. Ferfil'fayn, Institute of Petrochemical Synthesis imeni A. V. Topchiyev, USSR Academy of Sciences; Moscow, Doklady AN SSSR, Russian, Vol 201, No 4, 1972, signed to press 9 July 1971, pp 856-857]

P/S

It is known that the physiologically active phospho-organic compounds — cholinesterase inhibitors are pentavalent phosphorus compounds generally represented by the formula:



Here A and B are the framing alkoxyl, alkyl, aryl and other groups; X is the weak acid residue. Subsequently, the X bond with phosphorus has an anhydride character and the substance itself has the properties of a phosphorylating agent. Utilized in the capacity of group X were precipitates of hydrofluoric acid and dygrocyanic acid, phenols and mercaptans of variable structure and others.

Trichloroalkoxy groups were used in the present work for X since it is known that the corresponding alcohols containing a trichlormethyl group are markedly acidic. A number of trichloralkylphosphoric acid esters was synthesized and investigated. Their characteristics are cited in Table 1. The synthesized esters are colorless, slightly mobile liquids with a weak aromatic scent, easily soluble in organic solvents, mineral and vegetable oils, and poorly soluble in water. The synthesis scheme includes the following reactions:

1/2 035 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ADDITIVE FOR AN INTERNAL COMBUSTION ENGINE FUEL -U-

AUTHOR-(05)-SANIN, P.I., ARABYAN, S.G., SHER, V.V., KHOLOMONOV, I.A., GORDASH, YU.T.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,457

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--17MAR70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--CHEMICAL PATENT, CARBOXYLIC ACID, ESTER, KETONE, ACETYLENE, MINERAL OIL, FUEL ADDITIVE, INTERNAL COMBUSTION ENGINE, ORGANOALUMINUM COMPOUND

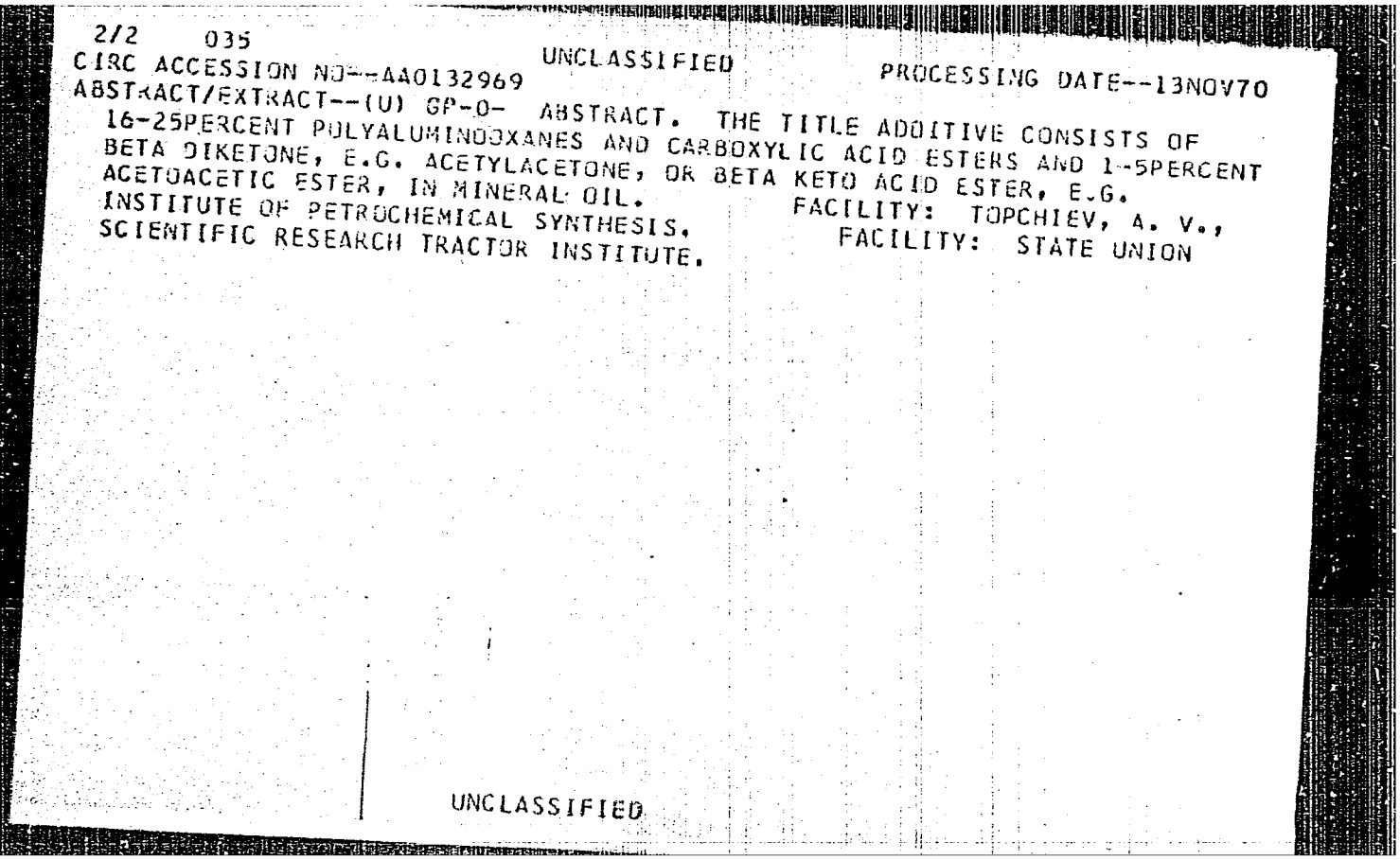
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0879 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132969

UNCLASSIFIED



2/2 035 UNCLASSIFIED PROCESSING DATE--13NOV70

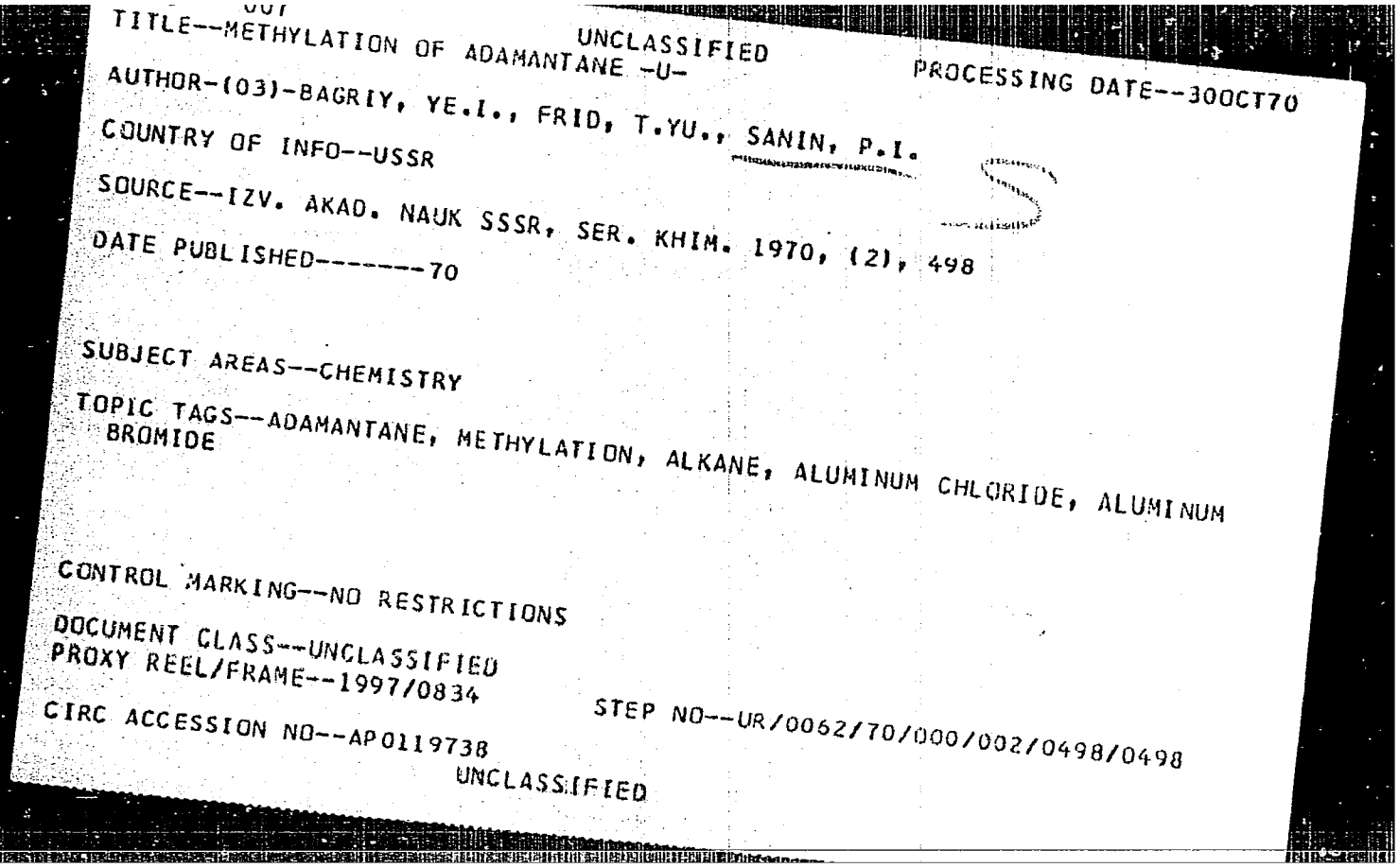
CIRC ACCESSION NO--AA0132969

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ADDITIVE CONSISTS OF 16-25PERCENT POLYALUMINOOXANES AND CARBOXYLIC ACID ESTERS AND 1-5PERCENT BETA DIKETONE, E.G. ACETYLACETONE, OR BETA KETO ACID ESTER, E.G. ACETOACETIC ESTER, IN MINERAL OIL.

INSTITUTE OF PETROCHEMICAL SYNTHESIS, FACILITY: TOPCHIEV, A. V.,

SCIENTIFIC RESEARCH TRACTOR INSTITUTE. FACILITY: STATE UNION

UNCLASSIFIED



UNCLASSIFIED

TITLE--METHYLATION OF ADAMANTANE -U- PROCESSING DATE--30OCT70

AUTHOR-(03)-BAGRIY, YE.I., FRID, T.YU., SANIN, P.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 498

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADAMANTANE, METHYLATION, ALKANE, ALUMINUM CHLORIDE, ALUMINUM BROMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0834

CIRC ACCESSION NO--AP0119738 STEP NO--UR/0062/70/000/002/0498/0498

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119738

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING ADAMANTANE IN NONANE OR 2,3,5-TRIMETHYLHEXANE WITH ALCL SUB3 OR ALBR SUB3 IN MOLAR RATIOS OF 1:3:1.5, RESP., 30 HR AT 60DEGREES WITH ALCL SUB3, OR 2.5 HR AT 160DEGREES WITH ALBR SUB3, GAVE A VARIETY OF ALKYLATES, RESULTING FROM METHYLATION BY THE ALKANES. WITH ALCL SUB3 THE FOLLOWING WERE FORMED: 1,3-DIMETHYLADAMANTANE 5PERCENT, 1,3,5-TRI-ME ANALOG 32PERCENT, 1,3,5,7-TETRA-ME ANALOG 15PERCENT, AND 48PERCENT UNIDENTIFIED PRODUCTS; WITH ALBR SUB3 THE PRODUCTS WERE 33PERCENT STARTING MATERIAL, 23PERCENT 1-METHYLADAMANTANE, 15PERCENT 1,3-DI-ME ANALOG, 20PERCENT 1,3,5-TRI-ME ANALOG, 7PERCEMT 1,3,5,7-TETRA-ME ANALOG, AND 2PERCENT UNIDENTIFIED MATERIALS. FACILITY: INST. NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.4:582.285.22:633.11

SANIN, S. S., and KAYDASH, A. S., North Caucasian Scientific Research Institute of Phytopathology, Krasnodar

"The Effects of Light on the Infectious Process of the Agent of Wheat Stem Rust"

Leningrad, Mikologiya i Fitopatologuya, Vol 7, No 5, 1973, pp 433-437

Abstract: The effects of light waves on the infectious process of Puccinia graminis f. sp. tritici uredospores were evaluated at 24.3-26.5° on wheat strain Kubanka-3. The results showed that formation of infectious structures were enhanced by infrared and red-orange part of the spectrum, and inhibited by ultraviolet and blue-violet wavelengths. The minimal light intensity required to show enhancement was three thousand lux; at 3.5 thousand lux the incidence of disease was increased 1.7 to 4.6-fold.

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USSR

UDC 614.449.57:615.285.7

LINEVA, V. A., PRSHIVORA, M., LEVIYEV, P. YA., OKULOV, V. P., GADZHIZALOV, D., SANINA, M. M., SAGATELOVA, I. S., and OBOLENSKAYA, L. F.

"Trails of the Czechoslovak Insecticide ES-50 Metathion in the USSR. I. ES-50 Metathion Used to Control the Housefly"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 2, 1970, pp 211-220

Abstract: ES-50 metathion, an organophosphorus compound derived from phenitrothion O, O-dimethyl (O-3-methyl-4-nitrophenyl) thiophosphate, was developed and tested in Czechoslovakia where it demonstrated a broad spectrum of action against flies, cockroaches, ticks, and crop pests. It has low toxicity for warm-blooded animals and no cumulative effect. Laboratory and field tests of the insecticide in five different climatic regions of the Soviet Union showed that it is highly effective in a dose of 2 g/m^2 of treated surface for 30-60 days. The temperature and humudity are the most important factors in the action of metathion. The higher the temperature and

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USSR

LINEVA, V. A., et al., Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 2, 1970, pp 211-220

humidity, the more toxic its effect. Increasing the humidity of the room or moistening the treated surfaces increases metathion's potency, especially on glass or wood. Among the negative features: (i) it has an unpleasant odor; (ii) it leaves marks on the treated surfaces; (iii) flies seem to develop resistance to it fairly quickly.

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USSR

UDC 58.004.12:632.4

SANIN, S. S., SADKOVSKIY, V. T., and BLAGODEROV, N. V., North Caucasian Scientific Research Institute of Plant Pathology, Krasnodar

"A Device for Trapping Fungus Spores in the Air"

Leningrad, Mikologiya i Fitopatologiya, No 5, 1971, pp 464-466

Abstract: The device designed by the authors consists of a rod with a vane attached at one end and two sidepieces 70 mm apart at the other end. Several slides coated with vaseline are inserted into grooves on the sidepieces. Above the latter is a shield to protect the surface of the slides from rain and direct sunlight. The rod, sidepieces, and vane rotate on a pivot set in a vertical stand. The device can be used not only to establish whether spores are present in the air, but also to determine the average daily concentration of spores, is calculated from the equation

$$C = 0.046 \frac{N}{v},$$

where C is the average daily concentration of spores in the air, N is the total number of spores on 4 slides, and v is the average daily wind velocity (m/sec). Tests of the device showed its trapping capacity to be 3.4 to 4 times greater than that of the ordinary vane-type apparatus and 7 to 12 times more sensitive on rainy days.

USSR UDC 632.951

PERMYAKOVA, N. M., SANIN, V. A., BABENKO, A. I., TKACHENKO, I. V., BIT'KO, I. YA., TOPOROV, A. N., Ukrainian Scientific Research Institute of Plant Protection

"On the Effectiveness of Dilor Compound"

Moscow Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (83), Oct 70, pp 33-34

Abstract: The article is a report on tests conducted in 1968 and 1969 to determine the effectiveness of dilor (β-dihydroheptachlorine) against the common and gray beet weevils, as well as the Colorado beetle. The experiments were conducted on collective farms in the Mironovskiy Rayon of the Kiyevskaya Oblast. Contact and enteric action of the chemical was studied as well as the speed and duration of the effect of dilor alone and in combination with polychloropinene and DDT. When sprayed in warm weather (20-24°C), dilor was found to be as effective as DDT and polychloropinene, and even better than DDT with respect to speed. In hot weather, dilor was more effective than DDT and equivalent to polychloropinene, and at low temperatures the chemical was more active than polychloropinene and at least as

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202810008-8"

USSR

PERMYAKOVA, N. M., et al., Khimiya v S l'skom Khozyaystve, Vol 8, No 10 (83), Oct 70, pp 33-34

effective as DDT. Both binary mixtures were more rapid-acting than their separate components. Dilor has little effect against beet weevils, killing no more than 30% of this pest with maximum doses. Experiments in 1968 showed that dilor is effective against the Colorado beetle in all stages of development. In view of its low toxicity for warm-blooded animals (mean lethal dose 2000-9000 mg/kg), dilor should be considered as a substitute for DDT.

USSR

UDC 536.531(088.8)

SANKIN, N. N., All-Union Scientific Research Institute of Light and Textile Machine Building

"Method for Temperature Measurement of Materials"

USSR Author's Certificate No 251863, filed 19 Jun 68, published 18 Feb 70 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.590 P)

Translation: A method is patented for the measurement of heat transfer, heat- and mass transfer during the heat treatment of fabrics, non-cloth materials and articles made of them. The studied specimen is brought into contact with the sensing element of a resistance thermometer by means of piercing it with an enamel, enamel and cotton or silk insulated wire of the sensing element of the resistance thermometer. V. S. K.

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SANKIN, V.A.

AA0044798

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2170

243951 SELECTIVE THERMAL RECEIVER OF RADIATION for absorption analytical instruments of the type comprising a selective radiation absorber in form of a gas mixture and a sensing element in form of a diaphragm. The proposed receiver comprises a solid radiation absorber, and the sensitive element is in form of a series of metal wires with a high TC of electric resistance.

The absorbers can be made of a material whose dimensions vary in time owing to ageing etc., such as PTFE or similar plastic. It is proposed for use for carbon dioxide gas analysers. The absorber and the sensing element do not constitute a single unit, but are in form of separate components close to or in contact with each other.

Other organic plastics (celluloid, polyethylene etc) can be used as absorbers for determination

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of other organic compounds (methane, ethane etc.).
Such receivers are highly selective, the absorber material is easily removable and selected, and the receiver components can be easily standardised.
18.1.68 as 1210964/26-25. PAVLENKO.V.A. et al. ANALYTICAL INSTRUMENTS MANUFACTURE DES.OFFICE ACAD. SCIENCES USSR. (1.10.69) Bul 17/14.5.69. Class 421. Int.Cl.C 01n.

AUTHORS: Pavlenko, V. A., Shutov, M. D., Budylin, Yu. L., Sall', A. O., Yuzupov, G. G., Sankin, V. A.

Spetsial'noye Konstruktorskoye Byuro Analiticheskogo Priborostroyeniya AN SSSR

2/2 19771628

USSR

UDC: 539.3

SANKIN, Yu. N., ARNAUT, V. P., GORSHENINA, G. N., UGLEVA, O. N.

"Concerning a Numerical Method in the Nonlinear Theory of Thin-Walled Elastic Shells"

Tr. Ul'yanovsk. politekhn. in-ta (Works of the Ul'yanovsk Polytechnical Institute), 1972, 8, No 2, pp 191-202 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9V73)

Translation: It is proposed that Newton's iteration process be used to solve nonlinear equations of equilibrium of shells of revolution which can not be considered flat, and whose stressed state is described by modified Reissner equations (E. L. Aksel'rad, Izv. AN SSSR, Otd. tekhn. n. Mekhan. i mashinostr., 1960, No 4, pp 84-92 -- RZhMekh 1961, 6V41). The effectiveness of this method is evaluated on the example of solution of a system of nonlinear equations for a flat diaphragm. As a result of intercomparison of initial approximations and the behavior of discrepancies in differential operators, it is concluded that the given iteration process converges satisfactorily. L. A. Shapovalov.

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USSR

UDC 620.193.2

MIKHAYLOVSKIY, YU. N., KLARK, G. B., SHUVAKHINA, L. A., SAN'KO, A. P., GLADKIKH, YU. P., and AGFONOV, V. V., Insitute of Physical Chemistry, Academy of Sciences USSR

"Calculation of the Atmospheric Corrosion Rate of Zinc and Cadmium Coatings in Different Climatic Areas"

Moscow, Zashchita Metallov, Vol 7, No 5, 1971, pp 534-539

Abstract: Zinc and cadmium are taken as examples in developing a general method of calculatingthe rate of atmospheric corrosion for any climatic zone in which corrosion related both to adsorption and phase moisture layers is taken into account. The meteorological factors involved included relative humidity, air temperature, the time during which the metal was wetted with phase mositure layers, and the content of corrosive admixtures in the atmosphere. Artificial climate chamber studies confirmed the linear dependence of the rate of zinc and cadmium corrosion on the SO_2 concentration (within the range 0.18-5 mg/m^3). The maximum rate of zinc and cadmium corrosion in rural areas in any climatic zone cannot exceed $\sim$10 $g/m^2 \cdot$ year in closed quarters and $\sim$ 30-40 $g/m^2 \cdot$ year out in the open. These values climb sharply when SO_2 is present in the 1/2

USSR

MIKHAYLOVSKIY, YU. N., et al., Zashchita Metallov, Vol 7, No 5, 1971, pp 534-539

atmosphere. For example, in an industrial atmosphere containing 0.2-0.3 mg/m^3 SO_2, the rate of zinc and cadmium corrosion increases by an order of magnitude and in a heavily contaminated atmopshere with high hunidity can reach a level of 100-200 $g/m^2 \cdot year$. The difference between the corrosion rates of relatively thick ($\geq$ 20-30 microns) zinc and cadmium coatings and pure zinc and cadmium is not great, generally.

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USSR

UDC: None

TAKIBAYEV, Zh. S., BOOS, E. G., SAN'KO, L. A., MUKHORDOVA, T. I., MOSIYENKO, A. M., ZAYTSEV, K. G., and SHARAPOV, K. V., Institute of High-Energy Physics, Kazakhstan Academy of Sciences

"Studying Four-Beam pp-Interactions at pulses of 19.1 Gev/s"

Moscow, Yadernaya Fizika, vol 16, No 5, 1972, pp 974-982

Abstract: The purpose of the present paper is to study the general dynamic characteristics of secondary particles from four-beam proton-proton interactions, such as pulse and angle distributions, inelasticity, and correlation between nucleons, at primary pulses of 19.1 Gev/s. A comparison of the experimental and theoretical results is also made. The difference between the approach taken by the experiments of this paper and that of earlier work in the same direction is that the present paper takes into account information regarding the nature of the charged particles obtained by direct measurements of the ionization loss density. The experiments involved observations in a two-meter waveguide of a bubble chamber irradiated by protons with a pulse of 19.1 $\pm$ 0.1 Gev/s, in which 17,700 events were recorded and 11,000 interactions were

USSR

UDC: None

TAKIBAYEV, Zh. S., et al, Yadernaya fizika, vol 16, No 5, 1972, pp 974-982

selected for measurement. A table is given of various methods of obtaining experimental data and the corresponding results. Comparison of the theoretical and experimental results indicates that the multiperipheral model on which the former is based shows closer agreement with the experimental distribution of inelastic pp interaction, depending on the number of secondary charged particles. The authors express their appreciation to the Committee on Track Chambers of CERN, workers in the Laboratory of Elementary Particles, the Division of Computer Techniques, and the Mathematical Physics Laboratory of the IFVE[Institute of High-Energy Physics] of the Kazakhstan Academy of Sciences, as well as the LVTA Laboratory of the Joint Institute of Nuclear Research.

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USSR

UDC 539.126

SANIKO, L. A., RUS'KINA, G. Ya., MUKHORDOVA, T. I., TAKIBAYEV, Zh. S., [redacted], E. G.

"Methods of Determining Background Noise"

Alma-Ata, Izvestiya AN Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya, No 6, Nov-Dec 71, pp 6-12

Abstract: An important problem in the analysis of interactions in high-energy situations is the determination of background noise distributions of the effective masses of the particles involved. This paper discusses a method for computing noise distributions, based on experimental data for the angles and impulses of the particles, and demonstrates the possibility of determining the noise by various methods of particle combinations and the formation of known nonresonance combinations. Also examined is the effect of small dip angles of the particles on the form of the noise distribution, information which is essential in the study of particle interactions in nuclear photoemulsions. To investigate all aspects of the method, the authors used random stars modeled at energy levels of 10 Gev and experimental

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SAN'KO, L. A., Izvestiya AN Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya, No 6, Nov-Dec 71, pp 6-12

data of particle angles and energies from four-ray events recorded in nuclear emulsion at an energy level of 20 Gev.

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Nuclear Physics

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UDC 539.1.073/.074

BOOS, E. G., MOSIYENKO, A. M., SAN'KO, L. A., TAKIBAYEV, ZH. S., and TEMPRALIYEV, T. T., Institute of Nuclear Physics, Kazakh SSR Academy of Sciences, Alma-Ata

"Determination of the Nature of Charged Particles by Delta-Electrons in a Hydrogen Bubble Chamber"

Pribory i Tekh Eksper, No 4, 1971, pp 64-66

Abstract: The authors discuss the results of a new method of identifying high-energy charged particles by using delta-electrons. The delta-electrons were registered on secondary tracks of four-beam pp-interactions in an 81-cm hydrogen bubble chamber with a primary impulse of 10 GeV/sec. The effectiveness of the method is 4% of the total number of secondary particles; in principle it makes it possible to determine the nature of the particles in the region of impulses greater than 2 GeV/sec where it is practically impossible to make identification by measuring the ionization losses. The authors support their findings with equations and schematics. Figure 1 depicts the impulse spectrum for positive particles and delta-electrons. Figure 2 describes the distribution by the square of the mass for negative and positive particles. Figure 3 shows the impulse spectrum

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BOOS, E. G., et al., Pribory i Tekh Eksper, No 4, 1971, pp 64-66

of particles with an impulse greater than 2 GeV/sec. The article contains 3 figures and 3 bibliographic entries.

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UDC Δ539.1.073/.074

SAN'KO, L. A., TAKIBAYEV, ZH. S., BOOS, E. G., VOLKOVA, O. I., MOSIYENKO, A. M., ZAYTSEV, K. G., TEMIRALIYEV, T. T., and KHOLMETSKAYA, A. V., Institute of Nuclear Physics, Kazakh SSR Academy of Sciences, Alma-Ata

"Identification of Secondary Particles From the Ionization Losses in a Hydrogen Bubble Chamber"

Pribory i Tekh Eksper, No 4, 1971, pp 67-69

Abstract: The authors give the results of identifying secondary charged particles forming in the interactions of protons at an empulse of 10 GeV/sec in an 81-cm hydrogen bubble chamber. They show that by using the method of average length of discontinuities they can determine the nature of 30% of all positive particles in a certain range. Graphs are used to illustrate the authors' results. Figure 1 shows the relative error in density as a function of track length. Figure 2 shows the ionization curves computed for various types of particles. Figure 3 shows the distribution of data points relative to the ionization curves for positive and negative particles. Analysis of the authors' results shows that the method described herein will allow identification of 90% of all the particles measured. The article contains 3 figures and 4 bibliographic entries.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202810008-8"

USSR

TAKIBAYEV, Zh. S., BOOS, E. G., SAN'KO, L. A., and TEMIRALIYEV, T., Institute of High Energy Physics, Academy of Sciences USSR

"Study of Quasi-Two-Particle Reactions in Proton-Proton Interactions at 10 Gev/c"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 3, 5 Feb 71, pp 122-125

Abstract: The properties of quasi-two-particle reactions of the type $pp \to pN^*$, $pp \to p\Delta$, $pp \to \Delta N^*$, and $pp \to \Delta\Delta$ were studied. The reactions were identified in studying four-beam proton-proton interactions in an 81-cm hydrogen bubble chamber of Saclay irradiated at CERN by 10.01 ± 0.1 Gev/c protons. The reaction cross sections of the four reactions are given in a table. A second table gives experimental values for the ratio of the cross sections of different isotopic projections of the two-particle reaction $pp \to \Delta_{1236}\Delta_{1950}$. They are compared with calculations made for possible decay schemes of the isobar $\Delta_{1950} \to N\pi\pi$. It was assumed that the isospin of the exchange particle is equal to unity. The experimental data are in good agreement with this hypothesis. It is also shown that the experiment does not contradict two hypotheses concerning the type of decay $\Delta_{1950} \to (\pi\pi)_{T=1} + N_{T=1/2}$ and Δ_{1950} 1/2

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TAKIBAYEV, Zh. S., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 3, 5 Feb 71, pp 122-125

$\rightarrow (\pi)_{T=1} + \Delta(\pi N)_{T=3/2}$; the latter mode of decay agrees somewhat better with the average experimental values.

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1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--LEUCO 1,4,5,8 TETRAHYDROXYANTHRAQUINONE -U-

AUTHOR-(05)-BELKIN, I.D., BRIGIDER, YU.Z., MASLOSH, Y.Z., SANKO, L.G., POTIRAY, R.YE.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,777
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ANTHRAQUINONE, NITRATION, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1810 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132076

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0132076

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEUCO 1,4,5,8 TETRAHYDROXYANTHRAQUINONE (I) WAS PREPD. FROM 1,8 DIHYDROXYANTHRAQUINONE BY NITRATION, REDN. OF THE RESULTANT NITRO DERIV. WITH NA SUB2 S IN THE PRESENCE OF NA SUB2 S SUB2 O SUB4.2H SUB2 O, FILTRATION, RINSING, HYDROLYSIS IN THE PRESENCE OF AQ. NAOH AND NA SUB2 S SUB2 O SUB4.2H SUB2 O, AND SEPN. OF I.

UNCLASSIFIED

USSR

UDC 681.332.65

SAN'KO, V. S., BORODIN, V. S., and KATKOVA, L. V.

"Device for Comparing Binary Numbers"

USSR Author's Certificate No 264776, filed 21 Oct 68, published 17 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B217P)

Translation: The proposed invention belongs to the devices of digital automation and computer engineering in which transmission and conversion of sequential code groups of binary numbers, in decending bit order, are carried out. A circuit for determining the larger of two binary numbers made of magnetic elements with a rectangular hysteresis loop is well-known. This circuit permits determination of the larger of two numbers coming to its inputs. The circuit contains six magnetic elements with a rectangular hysteresis loop. The purpose of the present invention is expansion of the possibilities of this system. The essence of the invention consists in series connection of the exclusion circuit and the selective switching circuit and also creation of an auxiliary output, as a result of which the proposed circuit performs three operations instead of two. In the circuit

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SAN'KO, V. S., et al., USSR Author's Certificate No 264776, filed 21 Oct 68, published 17 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B217P)

of the proposed device the bit-by-bit number comparison principle is used. The larger number turns out to be the one for which there is a "1" in one of the high-order bits at the same time as there is a "0" in the second number. If in one of the numbers the highest-order bit is "1." then this number is larger than the other. For identical symbols in the first or several high-order bits the larger number turns out to be the one for which on sequential inspection, beginning with the high-order bits (left to right), there turns out to be a "1" in the same bit and a "0" in the other bit. From what has been stated it follows that the process of determining the larger of two numbers with a bit-by-bit comparison can begin only at the time of occurrence of different symbols in one of the high-order bits (when going from left to right). This bit can be called the "decision" bit. The time required to determine the larger number depends on the location of the "decision" bit for a given number of bits of the compared numbers.

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UDC 629.78.018.1(088.8)

BOROG, V. A., SANKOV, Ye. I., ROKITYANSKIY, R. I., SOSUL'NIKOV, I. L., TSVETKOV, Ye. A.

"Installation for Creation of an Air Stream"

USSR Author's Certificate No 309268, filed 20/05/66, published 3/09/71, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.132 P from the Resume).

Translation: This invention relates to equipment for aerodynamic research, namely installations for the creation of an air stream. Installations for the creation of an air stream are known, containing a platform and a non-moving cover installed on the platform, forming an air channel together with an attached shaped nozzle fixed relative to it, in which there is a motor with a fan and a guiding grid. These installations do not allow aerodynamic loading of individual units of an assembled aircraft at various levels and at an angle to its primary planes. The installation suggested for the creation of an air stream differs from known installations in that the cover is fastened to the platform by hydraulic lifters allowing it to be moved forward and backward and rotated by a fixed angle in the vertical plane. Furthermore, the end portion of the cover is made with guides which rotate the attached nozzle around the axis of the air channel, while the device for fixation of the nozzle relative to the cover is equipped with a hydraulic drive. 2 Figures.

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BOROVKOV, I. S., SANKOVICH, V. M.

"Increasing the Flow Rate of the Working Gas in a Molecular Aerodynamic Tube by Adding a Lighter Gas"

Uch. Zar. Tsentr. Aerogidrodinam., In-ta., [Scientific Writings of the Central Aerohydrodynamic Institute], 1971, 2, No 3, pp 52-58. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1B272 by O. K. Razanov).

Translation: The most probable velocities for molecules of the heavy and light gases are calculated when pure gases and their gas mixtures are used in a molecular tube. The parameters of the molecular aerodynamic tube used are: diameter of critical cross-section of sonic nozzle 1.08 mm, distance between this cross-section and input cross section of first skimmer 25 mm distance between input cross-sections of first and second skimmers 47 mm. Argon and helium were used as the pure heavy and light gases, mixtures of argon and helium of various compositions were used as the gas mixtures. The pressure in the working chamber did not exceed 10^{-5} mm hg. The device for determination of the most probable molecular flow velocities was based on the stroboscopic principle: a rim 250 mm in diameter, rotated by an electric motor, had an even row of slits 2 mm wide and 5 mm high around its circumference and converted the continuous flow of molecules into a pulsating flow. The flux of molecules was measured by a detector with a mass spectrograph. The dependences of the number of molecules

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UDC: 62-55

SANKOVSKIY, Ye. A., and KRUGLIKOV, V. V.

"Device for Determining Partial Derivatives"

USSR Author's Certificate No 298925, filed 10 Dec 69, published 29 Apr 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A159P)

Translation: The proposed device for determining partial derivatives in a self-adjusting automatic control system contains a relay switch for the controlling device and a differentiator. To improve the noise immunity of the device, a series connection of a resolving amplifier with two capacitors in the parallel inverse feedback circuit and an integrating amplifier is installed, the input and output of the latter being connected through the n.r. [normally open?] contact of the first relay switch, while the input and output of the resolving amplifier are connected through the n.z. [normally closed?] contact of the first relay switch. Resume.

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UDC 62-52

SANKOVSKIY, Ye. A.

Voprosy teorii avtomatichekogo upravleniya (Questions in the Theory of Automatic Control), Moscow, "Vysshaya Shkola," 1971, 231 pp

Translation: Annotation: This book examines questions of statistical analysis and synthesis of linear and several nonlinear systems of automatic control; the author gives the basic statistical characteristics of random signals, the integral and spectral coupling equation of output and input signals, methods of determining errors in automatic control systems caused by stationary random signals, and he describes the process of statistical synthesis of automatic control systems with a given structure and an arbitrary structure with infinite and finite memory.

Table of Contents:

Foreword
Introduction
1. Basic Definitions
2. Errors in the Steady-State Mode of Linear Automatic Control Systems Produced by Slowly Varying Effects

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